Ontario Ministry of Labour
Research Branch

Employment and Immigration Canada

Northwestern Ontario Manpower Adjustment Study

Component Study Number 6

Results of a Manpower Survey of the Mineral and Forest Products Industries in Northwestern Ontario

Ontario Ministry of Labour

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PREFACE

The Northwestern Ontario Manpower Adjustment Study was undertaken by the Research Branch of the Ontario Ministry of Labour as one of the projects for the Canada/Ontario Interim Northlands Subsidiary Agreement under the General Development Agreement. The funds for this project were provided by Employment and Immigration Canada and by the Ontario Regional Priority Budget.

The objective of the Study is to provide information required for the development of policies and programmes designed to relieve structural imbalances in the labour market in Northwestern Ontario. The Study comprises ten component projects dealing with labour supply, labour demand, turnover and absenteeism, migration, and the labour market intentions of graduating students. A complete list of these projects appears inside the back cover.

The present report, "Results of a Manpower Survey of the Mineral and Forest Products Industries in Northwestern Ontario," presents forecasts of future employment in the mines, sawmills, pulp and paper mills, and logging firms in Northwestern Ontario. The opinions expressed in this report do not reflect the official views of the Ontario Ministry of Labour, Employment and Immigration Canada, the Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, or the Department of Regional Economic Expansion.

We would like to take this opportunity to thank the many individuals and organisations that helped us to complete this Study. Thanks are due to Employment and Immigration Canada and to the Ontario Regional Priority Budget, whose financial support made the Study possible. We also thank Dr. L. O. Stone, Professor Noah M. Meltz, and Professor C. A. Jecchinis; the members of the Committee on Getting and Holding Manpower in Northwestern Ontario; and Mr. Cliff McIntosh and Mr. Bob Michels of the Quetico Centre, all of whom helped during the planning stages of the Study. For supplying data indispensable to our research we thank the staff at Lakehead University and Confederation College; the Boards of Education in the Districts of Thunder Bay, Rainy River, and Kenora; and the employers and other persons too numerous to name whose contributions assisted us immeasurably. For cooperation and perseverance which facilitated our work we are indebted to many officials in both the Federal and Provincial Governments, and especially to the members of the Federal-Provincial Management Committee for the Interim Northlands Subsidiary Agreement. We are indebted as well to Mr. Michael Ryval and Mr. Charles Bogue, who edited the drafts of these reports for publication, and to the many persons on the clerical and secretarial staff of the Ontario Ministry of Labour whose assistance made it possible to complete these reports. For their encouragement and support we thank Mr. John Kinley and Mr. M. Skolnik, who were the Directors of the Research Branch at the Ontario Ministry of Labour while this Study was in progress, and Mr. G. S. Swartz, the current Director of the Branch. Finally, special thanks go to Mr. Brian Wolfe, who prepared a draft on which this report is based.

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NORTHWESTERN ONTARIO MANPOWER ADJUSTMENT STUDY

CHAPTER I

INTRODUCTION

This study contains the findings of a manpower survey of employers in the mining, pulp and paper, and logging industries in Northwestern Ontario.[1] Its main objective is to develop forecasts of the total employment and additional manpower requirements in these industries by occupation between 1978 and 1981. It also names the occupations and industries in which labour shortages are expected during that period, and discusses the reasons for these shortages. Special sections of this report are devoted to the employment of women in these industries and the relationship between labour turnover and labour shortages.

A separate report has been devoted to the mining, pulp and paper, and logging industries because they occupy a special place in the Region's economy. A few observations on the demographic character of the Region may help to make their importance clear. In 1971, 17.6 percent of Northwestern Ontario's labour force was employed in these industries, while only 2.4 percent of the total provincial labour force was so employed. Although Northwestern Ontario comprises 60 percent of the Province's land area, it supports less than 3 percent of the Province's total labour force.[2] Furthermore, while about 50 percent of the Region's potential labour force[3] live in the city of Thunder Bay, the remaining 50 percent are scattered among numerous small towns, most of which have populations of fewer than 3,000 people. Although Thunder Bay is a major centre whose economy is diversified, most of the Region's small towns rely entirely on a single resource industry. As a result, huge tracts of Northwestern Ontario are entirely dependent on the fortunes of the mining, pulp and paper, and logging industries. The need for information on the future manpower requirements in these industries is clear.

The task of forecasting manpower requirements in Northwestern Ontario is complicated by various difficulties. First, the Region's economic backbone, the resource sector, is subject to changing and at times unforeseeable conditions in the volatile world market. Second, many of Northwestern Ontario's resources are non-renewable, and these resources are being depleted at rates that are in some cases unknown. Third, the government has shown increasing concern over the control of pollution, and the costs and timing of such controls as it may introduce are as yet uncertain. Fourth, the distribution of the Region's small population over so large an area limits Northwestern Ontario's ability to benefit from economies of scale. Finally, the future movement of people to and from the Region is difficult to forecast because the effects of new immigration policies and a depressed national economy are unknown. In view of these uncertainties in the Region's economy, therefore,

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[1] "Northwestern Ontario" refers to the Northwestern Ontario Economic Region, defined by P. Camu, E. P. Weeks, and Z. W. Sametz in Economic Geography of Canada (Toronto: Macmillan, 1964), and recognised by the Ontario Ministry of Treasury, Economics, and Intergovernmental Affairs as one of its five Planning Regions for the Province of Ontario. Unless otherwise specified, the term "Region" as used in this report is synonymous with the above geographical designation.

[2] Statistics Canada, Census of Canada, Labour Force, 1971.

[3] I.e., those 15 years old and older.

predictions of either the size or the direction of economic growth in Northwestern Ontario, even in the immediate future, cannot be made with confidence.

The remaining chapters of this report are organised as follows: Chapter II outlines the methodology used in the survey of employers; Chapters III, IV, V, and VI present the findings of the survey with regard to mining, sawmills, pulp and paper mills, and logging, respectively; and Chapter VII summarises the main results of the study and offers some tentative conclusions.

CHAPTER II

METHODOLOGY

1. The survey questionnaire

Two approaches may be taken to forecasting manpower requirements. The first approach is to extrapolate future requirements from historical trends in employment. This approach assumes that the trends observed in the past will continue into the future.[1] The second approach is to conduct a survey of employers in order to find out from those who have day-to-day supervisory responsibility in each establishment what they think their manpower needs will be.

The present study uses the employer survey. Employers at individual establishments were initially approached by the Quetico Centre, a consulting and advisory group in Northwestern Ontario, and informed of the nature of the questionnaire.[2] Advance copies of the questionnaire were mailed to these employers in May 1977, and in June interviewers visited each establishment participating in the survey in order to assist employers in completing the questionnaire.

The questionnaire asked for the following information:

1) The total number of employees at the respondent's establishment in each year between 1971 and 1977;

2) The expected total number of employees at the respondent's establishment in each year between 1978 and 1981;

3) The number of employees in each occupation at the respondent's establishment in each year between 1977 and 1981;

4) The total number of women employed at the establishment, and the number of women in clerical jobs, in 1976, and the expected numbers in 1981;

5) The establishment's total output (measured in physical units) in each year between 1971 and 1977;

6) The establishment's expected total output in each year between 1978 and 1981;

7) The total number of hirings at the establishment in 1976;

8) Occupations in which there were shortages at the establishment, and occupations in which there were surpluses on the labour market, in each year between 1971 and 1977;

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[1] This method is used by M. A. Choudhury in Projections of Manpower Requirements by Occupation and Industry in Northwestern Ontario, to 1981, Northwestern Ontario Manpower Adjustment Study, no. 7 (1978).

[2] The complete questionnaire used in this study is reproduced in Appendix A.

9) Occupations in which manpower shortages or surpluses are expected in each year between 1978 and 1981;

10) The expected reasons for these shortages;

11) Expected new operations, expansions, and closures in the establishment's industry in Northwestern Ontario between 1977 and 1981.

The titles and definitions of the occupations used in this survey are those found in the Canadian Classification and Dictionary of Occupations (1971). In order to guide employers in completing the survey, a list of the occupations and a description of the work performed in each was provided with the questionnaire.

2. The industries covered by the survey

Industries were classified according to the definitions given in the Standard Industrial Classification Manual (1970) published by Statistics Canada. The industry classes included in the survey were:

1) Gold Mines [S.I.C. 052]

2) Iron Mines [S.I.C. 058]

3) Miscellaneous Metal Mines [S.I.C. 059]

4) Logging [S.I.C. 031]

5) Sawmills [S.I.C. 251]

6) Pulp and Paper Mills [S.I.C. 271]

The names of establishments belonging to each industry group were obtained from the following sources:

1) Canadian Mines Handbook, 1976-1977, compiled by the field staff of The Northern Miner (Northern Miner Press, Ltd.);

2) Directory of Primary Wood-Using Industries in Ontario, 1973, Ontario, Ministry of Natural Resources;

3) Mel Soucie, District Economist, Northern Ontario, Canada Employment and Immigration Commission;

4) R. Michels, Quetico Centre.

3. The rates of response to the questionnaire

The rate of response to the questionnaire in each industry is shown in Table 1 (page 5). The numbers of establishments in the sawmill and logging industries in Northwestern Ontario are unknown. Estimates of the total employment in these industries are derived in Chapters IV and VI, respectively.

Employers generally did not provide forecasts of industry-wide manpower requirements. Most claimed to have little or no knowledge about the needs of other

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[3] See Appendix B for a list of the participating establishments.

Table 1

Rates of Response to the Questionnaire

Type of Firm	Total Number of Establishments in Northwestern Ontario	Number of Establishments Responding to the Questionnaire	Rate of Response (%)
Gold Mine	2	2	100
Iron Mine	3	3	100
Miscellaneous Metal Mines	7	7	100
Logging	N.A.	15	N.A.
Sawmill	N.A.	13	N.A.
Pulp and Paper	10	10	100

firms in their industries. A few stated that they did not want to reveal what they knew about other firms. This response was surprising. Mine and mill managers and personnel administrators had been expected to be acutely aware of the manpower requirements of similar establishments in Northwestern Ontario, particularly in view of the supposed labour shortages. When labour is in short supply increases in the output and employment in one firm can seriously reduce the supply of labour available to another firm, which may in consequence be forced to curtail planned increases in its own output and employment.

There are several possible reasons for this apparent lack of knowledge of local manpower conditions. First, manpower considerations may not be important in these firms' decisions to expand output; the high capital intensity of resource industries may reduce the amount of attention paid to the availability of manpower. Second, local managers may know more about manpower conditions than they wish to reveal. Finally, these establishments may not have experienced labour shortages serious enough to cause local managers to seek information about the output plans and manpower requirements of other firms in their industries. This last possibility is supported by the results of the present survey.

CHAPTER III

MINING

1. Current and future employment in mines in Northwestern Ontario

In June 1977 the 12 mines operating in Northwestern Ontario employed a total of 4,061 workers, an increase of 26 percent from the 1971 figure of 3,216.[1] By 1981 only ten mines are expected to be operating, and their employment is expected to drop 13.4 percent to 3,517. Approximately 80 percent of the reduction in employment will occur in iron mines; employment in gold and base metal mines is expected to be fairly stable between 1977 and 1981.

Forecasts of the employment in each class of mine are given in Table 2 (page 8). Underlying these forecasts are the assumptions listed in sections 1. A. to 1. D. below. The reader should note that, because mine managers stressed the possibility of other closures or layoffs during the forecast period if current trends in metal prices and government taxation continue, larger reductions than those forecast here may occur.

1. A. Iron mines

a) Caland Ore at Atikokan is expected to begin reducing output and employment in 1979 and to cease operations by 1981.

b) Steep Rock Iron Mines may cease its operations at Atikokan by 1980 because of the depletion of the ore-body, but may begin mining at Bending Lake in 1980 or 1981. Although the output will be higher at Bending Lake, this mine is expected to employ the same number of workers as the Steep Rock operation.

c) Griffith Mine near Red Lake may reopen its kiln between 1978 and 1981. Although the operation of the kiln should increase Griffith Mine's employment by 10 percent, only a 5 percent increase has been allowed in making the projections because of the uncertainty of this operation.

1. B. Gold mines

No openings or closures are expected between 1977 and 1981.

1. C. Base metal mines

a) The UMEX Mine, whose first full year of operation at Pickle Lake was 1977, will probably operate at less than full capacity until at least 1981. Operating at full capacity this mine could employ between 300 and 350 workers.

b) South Bay Mines in the Red Lake area may continue operating with its current employment until 1981, although the ore-body proven at the time of writing will permit mining only until 1980.

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[1] See Ontario, Ministry of Natural Resources, Ontario Mineral Review (1975), p. 14.

Table 2

Employment in Mines in Northwestern Ontario, 1977 to 1981

Class of Mine	1977	1978	1979	1980	1981	Change in Employment, 1977 to 1981 (%)
Iron	1,645	1,652	1,551	1,551	1,210	-26.4
Gold	560	560	560	560	560	0
Base Metal Mines	1,856	1,826	1,798	1,788	1,747	-5.9
Total	4,061	4,038	3,909	3,899	3,517	-13.4

c) Sturgeon Lake Mine near Ignace will begin reducing employment in 1979 and cease operations by the end of 1980.

1. D. The productivity of labour and employment

Discussions with mine managers indicate that the productivity of labour is unlikely to increase significantly during the next four or five years except in iron mines.[2] The largest increases in productivity usually accompany the opening of new mines, because these mines can adopt the latest technology more readily than existing mines. Since only one new mine is expected to open by 1981--the mine at Bending Lake--it seems unlikely that changes in the productivity of labour will substantially affect employment in mining.

2. The distribution of the employment in mines in Northwestern Ontario by occupation

A detailed analysis of the employment in the Region's mines by occupation is shown in Table 3 (page 10). The data show that there will be fewer employees in almost all types of jobs by 1981. The numbers of miners, machinists and mechanics, and workers treating and refining ore (i.e., processing occupations) will decline the most: there will be between 100 and 125 fewer jobs in each of these occupations by 1981. The greatest proportional decline in employment will take place among transport equipment operators, carpenters, clerical workers, metallurgical engineers, and mining engineers: the number of jobs in transport equipment operating will decline by more than 40 percent, while the number of jobs for carpenters and machinists will decline by about 20 percent. Total employment is expected to decrease by 13 percent between 1977 and 1981.

The shift of the distribution of occupations in mining may be attributed almost entirely to the planned closures of Steep Rock Mines, Caland Ore, and the Sturgeon Lake Mine, and to the planned opening of Steep Rock's new operation at Bending Lake. The employment projections show that the distribution of employment by occupation at all other mines is unlikely to change. Thus, new technology and increased productivity of labour are not likely to affect employment significantly during the next few years.

The only infusion of new technology that is likely to occur in the mining industry in Northwestern Ontario during this period is in Steep Rock's proposed mine at Bending Lake, which will be more mechanised than its Atikokan mine.[3] Steep Rock will employ about the same number of workers at Bending Lake as at Atikokan, but it will employ 31 percent fewer miners, 33 percent more engineers, and 15 percent more machinists and mechanics by 1981. This shift in the demand for labour probably foreshadows the occupational trend that will prevail after 1981, provided that there is an upsurge in mining in Northwestern Ontario during the 1980s. This shift should also serve as a warning that the Region's mining industry may soon find itself at a

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[2]The survey data suggest that the tonnage per employee mined at iron mines will increase by 12 percent between 1976 and 1981; little or no change in productivity is expected in either gold mines or base metal mines. Between 1971 and 1976 the increase in the tonnage per employee mined in iron mines was 32 percent, and in base metal mines, 88 percent; in gold mines the tonnage per employee decreased by 6 percent between 1971 and 1976. Five new base metal mines began operation between 1971 and 1976, and the Griffith Iron Mine, which opened in 1968, doubled its output while increasing employment by only 35 percent.

[3]At the time of writing the decision to proceed with the Bending Lake Project had not been confirmed.

Table 3

Forecasts of Employment by Occupation and Class of Mine, 1977 and 1981

	1977				1981				Change in Total Employment 1977-1981 (%)
	Iron	Gold	Base Metal	Total	Iron	Gold	Base Metal	Total	
Managerial and Administrative	40	12	87	139	32	12	72	116	-16.5
Engineering and Natural Sciences	61	31	129	221	64	31	119	214	-3.2
Chemists	6	3	6	15	8	3	4	15	0
Geologists	2	2	15	19	2	2	15	19	0
Metallurgical Engineers	4	0	7	11	4	0	5	9	-18.2
Mining Engineers	8	3	15	26	6	3	13	22	-15.4
Surveyors	7	8	23	38	6	8	22	36	-5.3
Draughtsmen	4	3	7	14	5	3	7	15	+7.1
Engineering Technicians	14	8	18	40	16	8	15	39	-2.5
Others	16	4	38	58	17	4	38	59	+1.7
Clerical	106	24	79	209	76	24	71	171	-18.2
Miners	316	311	774	1401	188	311	776	1275	-9.0
Processing Occupations	302	59	294	655	237	59	240	536	-18.2
Machinists and Mechanics	471	31	280	782	377	31	267	675	-13.7
Electricians	104	13	63	180	84	13	60	157	-12.8
Carpenters	6	4	21	31	2	4	18	24	-22.6
Pipefitters, Plumbers	7	6	14	27	5	6	15	26	-3.7
Transport Equipment Operators	202	8	11	221	108	8	11	127	-42.5
All Others	30	61	104	195	37	61	98	196	+0.5
Total Employment	1645	560	1856	4061	1210	560	1747	3517	-13.4
Number of Mines in Operation	3	2	7	12	2	2	6	10	-16.7

competitive disadvantage on world markets if new capital expenditures are not made.

3. Minimum additional manpower requirements in mining in Northwestern Ontario, 1978 to 1981

The main purpose of forecasting manpower requirements is to estimate the number of additional workers in a particular skill category who will be required in order to reach defined goals. Replacement needs can be calculated as the total manpower required for a given year minus the stock at the beginning of the previous year, allowance being made for attrition to the stock during the previous year. Such attrition is caused by three factors: 1) death and retirement, 2) inter-occupational mobility (i.e., quits and discharges), and 3) net immigration and inter-regional migration. It is clear that even when total employment in a given industry decreases, as it will in many industries in Northwestern Ontario between 1978 and 1981, it can still be necessary to hire new workers to replace those who are lost through attrition.

Because data were unavailable for quits and discharges and for net immigration the present study takes into account only deaths and retirements, which are assumed to occur at a fixed annual rate of 3 percent. The estimates of additional required manpower that are given here are thus truly minimum estimates; the actual requirements are likely to be higher because quits, discharges, and migration have not been taken into account.

Table 4 (page 12) shows the minimum number of new workers that will be required in Northwestern Ontario's mines between 1978 and 1981. Although this table suggests that there will be a surplus of 64 workers in all mines combined, it is unlikely that this surplus will ever be realised; shortages may still occur in certain occupations.

4. The employment of women in mines

Although women account for a small percentage of the work-force in mines their share is expected to increase during the next few years. As the figures in Table 5 (page 13) indicate, slightly fewer than 6 percent of the mine employees in 1976 were women. Their share of total employment is projected to rise to about 8 percent by 1981. In nine of the twelve mines canvassed 50 percent or more of the female employees held clerical jobs in 1976, although several examples were cited of women working in more physically demanding jobs such as blasting. Mine managers gave the following reasons to explain both the low rate of employment of women in mining firms and their relatively high concentration in clerical jobs:

a) Most mining jobs are too physically demanding;

b) Mines have received bad publicity about safety conditions;

c) The costs of creating separate living and working facilities for men and women (e.g., showers, locker-rooms) are prohibitive;

d) Miners' wives readily find work in the stores and offices in mining towns, and are able to avoid the long commuting distances to mines (over 100 miles a day in some cases);

e) Government regulations prohibit women from working at the face of a mine.

It is apparent that mine managers hold widely varying and sometimes contradictory opinions on employing women in mines: some managers thought the physical de-

Table 4

Forecasts of Minimum Additional Manpower Requirements in Mining, 1978 to 1981

Class		1978	1979	1980	1981
Iron Mines					
	Replacement Needs*	49	50	47	47
	Change in Employment Due to Growth	7	-101	0	-341
	Total Minimum Additional Requirements	56	-51	47	-294
Gold Mines					
	Replacement Needs	17	17	17	17
	Change in Employment Due to Growth	0	0	0	0
	Total Minimum Additional Requirements	17	17	17	17
Base Metal Mines					
	Replacement Needs	56	55	54	54
	Change in Employment Due to Growth	-30	-28	-10	-41
	Total Minimum Additional Requirements	26	27	44	13
All Mines					
	Replacement Needs	122	122	118	118
	Change in Employment Due to Growth	-23	-129	-10	-382
	Total Minimum Additional Requirements	99	-7	108	-264

*A 3% annual death and retirement rate is assumed for all years and types of workers. See J. A. MacMillan et al., Determinants of Labor Turnover in Canadian Mining Communities, Series 2, Research Report no. 19, The Center for Settlement Studies (Winnipeg: The University of Manitoba, Department of Agricultural Economics, 1974), p. 55.

Table 5

The Employment of Women in the Mines Surveyed

Class		1976	1981
Iron Mines			
	Number of Women	128	98
	Percentage of Total Employment	7.6	8.1
Gold Mines			
	Number of Women	10	29
	Percentage of Total Employment	1.8	5.2
Base Metal Mines			
	Number of Women	87	147
	Percentage of Total Employment	5.1	8.4
All Mines			
	Number of Women	225	274
	Percentage of Total Employment	5.7	7.8

mands of the work were too great, while others said that modern equipment allowed women to perform almost all mining jobs easily; some managers worried about the relations between men and women at a mine, while others thought that more female participation might reduce turnover among males; some managers believed that employing married couples in a predominantly male setting would lead to marital breakdowns, while others thought that greater family income would lead to more secure marriages. It seems that the employment of women at mines is largely dependent on the attitudes of individual mine managers, and that these attitudes are founded on limited experience with female workers.

5. Labour turnover in mines in Northwestern Ontario

This study was not originally designed to measure or analyse labour turnover. However, during the course of the survey the subject of turnover was discussed with a number of managers who provided some useful data. Mine managers in Northwestern Ontario have several reasons for being concerned about the rate at which workers voluntarily leave their jobs. First, voluntary separations impose additional costs on mining establishments in the form of replacement costs and reduced labour productivity. Second, mining communities suffer from the transient nature of the population. Third, taxpayers must finance unemployment insurance payments and compensate for lost income tax revenue.

A recent study of turnover in the Canadian mining industry indicates that more than 80 percent of the total separations from mines in 1972 were voluntary.[4] It was estimated that a mining company faced an average cost of over $1,000 for each separation that required a replacement. This cost includes estimates of the production lost while the position remained vacant and reduced production while the new worker was being trained. The present survey did not collect data that can be directly compared to these figures. Judging by the concerns expressed by mine managers during the course of the survey, however, one may assume that many mines in Northwestern Ontario are currently facing the same type of turnover and similar turnover costs.

The information collected in the survey leads to three suppositions about turnover in mines, particularly new mines, which may run contrary to common belief. These suppositions are discussed below.

Supposition I: Turnover rates in mines in Northwestern Ontario are comparable to the turnover rates found in many other industries in the Province.

Table 6 (page 15) presents the separation rates[5] in 1976 for 11 mines in Northwestern Ontario. The average rate of separation was 61 percent; the highest

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[4] J. A. MacMillan et al., Determinants of Labor Turnover in Canadian Mining Communities, Series 2, Research Report no. 19, The Center for Settlement Studies (Winnipeg: The University of Manitoba, Department of Agricultural Economics, 1974).

[5] In the survey each respondent was asked for the total number of hirings at his mine during 1976. From these figures and from employment data separation rates were calculated for each mine using the following equation:

$$\text{Separation Rate}_{1976} = \text{Hiring Rate}_{1976} - \text{Percentage of Change in Employment, Dec. 75 to Dec. 76}$$

$$\text{where: Hiring Rate}_{1976} = \frac{\text{Total Hires}_{1976}}{\text{Total Employment}_{\text{Dec. 75}}}$$

Table 6

Separation Rates for Mines in Northwestern Ontario, 1976

Establishment*	Separation Rate (1976) (%)	Rank	Number of Years in Operation by 1976	Rank
A	147	1	1	11
B	136	2	2	10
C	107	3	3	9
D	94	4	29	2
E	85	5	4	8
F	71	6	27	3
G	48	7	5	7
H	43	8	8	6
I	39	9	16	5
J	38	10	19	4
K	23	11	32	1
Weighted Average	61			

Rank Correlation = -.72

*Mattagami Mine is excluded because it was not in production in 1976.

rate was 147 percent, the lowest, 23 percent. In a study of turnover in selected industries in Ontario[6] the average separation rate among industries was found to be 60.2 percent in 1975; separation rates by industry ranged from 225.4 percent in logging to 34.2 percent in selected transportation. Table 6 also shows the number of years each mine has been in operation and the rank correlation between the age of the mine and its rate of separation. The data suggest that as a mine grows older the stability of its work-force increases.

Several factors contribute to the instability of the work-force at a new mine. First, a mine opening in an isolated area often employs workers who have no roots there. Many of these workers may be unskilled and have no previous mining experience. Second, a large percentage of the experienced miners appear to have adopted a nomadic style of life. The main goal of these miners seems to be to earn as much money as possible in the shortest time possible so that they can quit work for several months; when their savings are exhausted they seek employment at another mine. Third, medical facilities, schools, housing, recreation centres, stores, etc. are often lacking or of poor quality during the first years of a new mining community, thus making it more difficult to attract permanent workers, especially family men. However, in each wave of miners some will decide to make the new mine their permanent employer, and as living conditions improve a greater proportion of newly hired miners will remain at the mine. Eventually--in perhaps five to ten years--the labour force will stabilise.

The average separation rate in 1971 for all mines then in operation was 45 percent. This rate is considerably lower than the 1976 Ontario average noted earlier, and may reflect more accurately the rate that mines in Northwestern Ontario will experience during the next few years as the separation rates at the newer mines begin to approach those of the more established mines. Moreover, as the number of mining jobs in Northwestern Ontario declines, voluntary separations ought to decrease, provided that the number of related jobs in other sectors of the national economy does not expand greatly.

Supposition II: Many of the voluntary separations in new mines are a natural and reasonable response to unavoidable conditions in mines and mining communities.

At new mines, where permanent housing is still under construction and a majority of workers are single males, camps or bunkhouses serve as living quarters for many workers. For $1.50 to $3.00 a day a miner receives three meals and a small bedroom. If it is assumed that the average employee works a 40-hour week, receives an average wage of $6.50 per hour, and loses 20 percent of his earnings through income tax, pension payments, etc., then a single worker arriving penniless at a mine could quit work after six months with over $5,000 in savings. He would also be eligible to collect unemployment insurance within three months of leaving his job if he were so inclined. Given the isolation of the mines, the nature of the work, the Spartan simplicity of the life, and the potential for rapid savings, it seems natural that many miners leave after a short period of employment. The costs created by this turnover are probably lower than those of providing plentiful housing, shopping, and recreational facilities in the first years of a mine's operation.

Supposition III: Attempts to reduce turnover may increase labour shortages in new mines.

Labour shortages are usually associated with high turnover. However, if a

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[6]Gordon Robertson and Jane Humphreys, Labour Turnover and Absenteeism in Selected Industries: Northwestern Ontario and Ontario, Northwestern Ontario Manpower Adjustment Study, no. 10 (1978).

high rate of turnover results from high separation and hiring rates then the labour shortages are likely to be short in duration. In this type of turnover replacements arrive almost as fast as workers leave. This situation seems characteristic of new mines in Northwestern Ontario.

It was noted above that the potential for miners to save a large proportion of their earnings is a factor that contributes to high separation rates at new mines. It should be kept in mind, however, that this potential to save also attracts workers to the mines. Reducing the ability to save by, for example, increasing room and board charges or reducing wage rates, might make it more difficult to attract workers willing to live in subsistence-style camps. New mines would then face the problem of long-term labour shortages. On the other hand, increasing the potential to save might make it easier to attract workers, but might also reduce the average length of their stay at the mine, and thus increase turnover costs.

In short, new mines face a delicate balancing problem. Increasing the rate of turnover raises the costs associated with labour turnover, but it reduces the duration of the shortages. Decreasing the rate of turnover reduces the costs, but it increases the duration of the shortages. The managers of new mines act as if relatively high turnover were the lesser of two evils, and a cost-benefit analysis might indicate that they are right.

6. Labour shortages in mines in Northwestern Ontario, 1971 to 1981

As was noted above, even though total employment is declining it will still be necessary to replace workers who leave their jobs, and shortages of workers may occur in some occupations. For this reason, mine managers were asked the following two questions:

a) What types of workers are in short supply in mines in Northwestern Ontario?

b) What are the causes of these shortages?

The responses to the first question indicate that miners, machinists, mechanics, and electricians have been and will probably continue to be in short supply at several mines. These apparent shortages should be assessed cautiously, however. Five mines opened in Northwestern Ontario between 1971 and 1977. New mines generally experience high turnover, which decreases as the mines become older. All five new mines claimed to have experienced shortages of miners during their first years in operation. However, these mines had no serious difficulty in finding miners, although those who were available were sometimes less qualified for their jobs than employers might have wished. The shortage of miners thus indicates rather a need for new mines to hire miners continuously than an insufficient supply of miners. Between 1977 and 1981, as the labour force in the new mines stabilises, the turnover in these mines should decline.

The case of skilled tradesmen is different: there appears to be a genuine shortage of tradesmen willing to work for the wage rates offered at the mines. Evidence of these shortages is found in the recent attempts that some mines have made to recruit skilled tradesmen in Great Britain and Southern Ontario. It should be stressed, however, that the size of the shortages is often quite small: in some cases the hiring of two or three more electricians or mechanics would eliminate the shortage of tradesmen at a mine.

In response to the second question mine managers cited the following factors as causes of labour shortages: insufficient housing, inadequate community ser-

vices, the availability of unemployment insurance, and low wages.[7] Their views are discussed more fully below.

6. A. Housing

An insufficient supply of reasonably priced housing is thought to be the main cause of shortages of miners and tradesmen. The residents of Northwestern Ontario face unique problems in obtaining suitable housing. The building season is comparatively short. Investment in single-industry communities is a considerable risk for private developers, money-lenders, and individual homeowners because the rapid depletion of ore reserves or a fall in demand for metals may shorten the life-expectancy of a mining community. Furthermore, construction costs are higher in Northwestern Ontario than elsewhere because the cost of transporting building supplies to remote communities is higher and because there are relatively few local contractors. In mining communities with little company housing the prohibitive costs of private construction lead to a poor quality of housing, which in turn deters families from moving to these communities.

6. B. Community services

Many managers believe that a community's services are directly related to its ability to attract and hold manpower. Mining communities in Northwestern Ontario generally do not have services comparable to those in large urban centres. This problem is aggravated by the large distances separating these small communities from centres whose services are better. The isolation of these communities leads to lengthy delays in bringing goods to mining communities, and the smallness of their populations limits the variety of goods that can be made available. A small Hudson's Bay outlet and a single food store are the biggest shopping facilities in some mining communities.

Furthermore, doctors, dentists, lawyers, and teachers are in short supply in mining communities, and workers and their families must often travel to Thunder Bay or Winnipeg to obtain adequate services. In one new community students in grade 11 and beyond must board in Thunder Bay in order to complete high school.

Recreational facilities are available to a limited extent, hockey and baseball facilities being the most common. Swimming pools, auditoriums, libraries, and other more expensive facilities are less common. Television and radio broadcasts are usually limited to those from one or two stations.

6. C. Unemployment insurance

According to mine managers, another serious cause of manpower shortages is the apparently easy access to unemployment insurance benefits. Unemployment insurance, they believe, can affect the availability of workers in at least two ways. First, it is thought to make mine workers less averse to quitting their jobs because the benefits allow them to survive more frequent or prolonged unemployment. Second, unemployment benefits may give unemployed workers in other regions or industries the option of rejecting offers to work in Northwestern Ontario's mines if they consider the wages or living conditions unsuitable.

6. D. Wages

One surprising finding of this survey was the concern employers expressed about the low level of wages in mining. Mine managers are worried because skilled

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[7] The reader is reminded that the information contained in this section summarises only the opinions of mine managers and not those of their employees.

tradesmen in Northwestern Ontario (e.g., carpenters, electricians, and mechanics) receive higher wages in construction and manufacturing than in mining. For example, a skilled tradesman may earn up to $2.00 an hour more in construction than in mining. In Ontario as a whole the average hourly wage in February 1977 was $1.66 less in mining than in construction work. This difference is even more significant than it at first appears, because the cost-of-living in mining communities is higher. On the other hand, some mine managers emphasised that they can offer year-round employment to skilled tradesmen, whereas the more seasonal construction industry cannot. However, managers believed that the higher hourly earnings in other industries and the lower cost-of-living in other communities, combined with the availability of unemployment insurance benefits, more than offset the advantages of stable employment in mining.

6. E. Training facilities

Manpower training programmes in Northwestern Ontario are considered adequate for the needs of the mining industry. Mine managers pointed out that many mining skills can only be learned on the job. They also noted that, in view of the high level of unemployment among qualified workers throughout Canada, most labour shortages cannot be blamed on insufficient training facilities.

CHAPTER IV

SAWMILLS

1. Current and future employment in sawmills in Northwestern Ontario

The process of forecasting the employment in sawmills is complicated by the fact that many small sawmills, particularly portable sawmills,[1] are operating throughout Northwestern Ontario. In order to compensate for this uncertainty two estimates were developed. Estimate one is based on the responses of sawmill operators participating in the survey and the results of a phone survey of non-participating sawmills whose yearly capacity is five million board feet[2] or more. Estimate two includes, besides the figures of estimate one, estimates of the employment in smaller operations. The estimates of employment in the smaller operations were based on discussions with employees at district offices of the Ministry of Natural Resources.

No major change in the employment in sawmills is forecast for the period between 1977 and 1981 (see Table 7, page 21). Employment in sawmills in the Region is expected to range from 1,150 to 1,450 throughout this period, according to the level of activity of the smaller operations. Although employment is expected to remain fairly stable, the output of sawmills is expected to increase during the next four years. For the period between 1977 and 1981 the nine sawmills responding to the questionnaire forecast a 10 percent increase in their output.

These forecasts of employment and output are subject to large errors. Respondents emphasised that the output and employment in their sawmills depend heavily on such unpredictable factors as the availability of substitutes for lumber, the rate of the sales tax on lumber, the amount of activity in residential and industrial construction, and the rate at which timber sources are depleted. Respondents noted that smaller sawmills are particularly affected by deteriorating lumber markets since these operations cannot absorb the costs of large inventories.

2. The distribution of employment by occupation in sawmills in Northwestern Ontario

Table 8 (page 22) indicates the distribution of employment by occupation at nine sawmills in the years 1977 and 1981. The only significant change that is forecast is in the distribution of labourers, the largest occupation group, which is expected to form a smaller proportion of total employment in sawmills in 1981 than in 1977. This change will result mainly from the introduction of mechanical sorters at one of the nine mills, which will reduce the mill's requirements for labourers by 25 percent and increase its need for machinists by 20 percent.

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[1] It is estimated that 50 to 100 portable sawmills are in operation in Northwestern Ontario, the majority in the vicinity of Thunder Bay and Fort Frances.

[2] See Ontario, Ministry of Natural Resources, Directory of Primary Wood-Using Industries in Ontario, 1973.

Table 7

Estimates of Employment in Sawmills in Northwestern Ontario*

Locality	1977	1981
District of Kenora	210-300	210-300
Kenora - Keewatin[a]	110-160	110-160
Red Lake	0- 10	0- 10
Dryden[b]	100-130	100-130
District of Rainy River	160-240	160-240
Fort Frances - Rainy River[c]	40-100	40-100
Atikokan[d]	120-140	120-140
District of Thunder Bay	780-910	780-910
Thunder Bay[e]	630-730	630-730
Nipigon - Red Rock	0- 10	0- 10
Geraldton - Longlac[f]	85- 95	85- 95
Terrace Bay - Marathon - Manitouwadge[g]	65- 75	65- 75
Total for Northwestern Ontario	1150-1450	1150-1450

*Minimum employment estimates are based on survey results and telephone contacts with "major" sawmills (i.e., those whose capacity is 5 million board feet or more a year) not participating in the survey. Maximum employment estimates include estimates of employment in smaller operations, including portable sawmills. It is assumed that a portable sawmill employs two persons.

Sawmill operations planned by Reed Paper in Dryden and Ear Falls are not included in these forecasts, since the officials of Reed Paper did not expect these facilities to be operating before 1981. It is assumed that the sawmill at Hudson, formerly owned by Pope and Talbot, will not reopen before 1981. No major closures are expected during the forecast period.

[a]Minimum estimates include Peterson Lumber Company, Trilake Timber Company, and Ontario-Minnesota Pulp and Paper Company (Stud Mill).

[b]Minimum estimates include Reed Paper - Colenso Mill.

[c]Minimum estimates include Armstrong Lumber Company and Manitou Enterprises.

[d]Minimum estimates include Domtar Woodlands Limited.

[e]Minimum estimates include Kakabeka Timber Limited, Great West Timber Limited, Great Lakes Paper Company (Stud Mill), and Northern Wood Preservers.

[f]Minimum estimates include Kimberly-Clark of Canada Limited.

[g]Minimum estimates include Kimberly-Clark of Canada Limited (Stud Mill).

Table 8

Forecasts of Employment by Occupation in Sawmills in Northwestern Ontario, 1977 and 1981*

Occupation	Distribution	
	1977 (%)	1981 (%)
Managerial and Administrative	5.7	5.7
Clerical	4.8	4.8
Wood Processing		
Foremen	4.8	4.8
Sawyers	10.8	11.4
Inspectors and Graders	4.5	4.8
Labourers	44.6	43.1
Others	6.2	6.2
Machinists and Mechanics	8.5	8.9
Transport Equipment Operators	4.8	5.1
All Others	5.3	5.2
Total	100.0	100.0
Total Employment in Nine Mills	627	631

*The reader should note that the products and, therefore, the occupational requirements of sawmills are quite diverse. One might find lumber, lumber chips, sawdust shavings, ties, or poles being produced in any given mill in the Region. The distribution shown in this table does not reflect the distribution of employees in every mill throughout the sawmill industry in Northwestern Ontario.

3. The employment of women in sawmills

In 1976 women comprised 5 percent of the total work-force in the nine sawmills canvassed; sixty percent of these women worked in clerical jobs. Three sawmills employed no women at all in 1976. Sawmill operators do not foresee a significant rise in female employment; by 1981 they expect the proportion of female workers to rise to 6 percent.

Two reasons were given for the low proportion of women among employees at sawmills. First, most jobs at sawmills are labouring jobs, which are considered to be too physically demanding for women. Most women entering sawmills therefore apply for clerical jobs, of which there are relatively few. Second, sawmill operators think that on-the-job training costs are higher for women than for men because the past work experience of most women bears little relation to the type of work done at the mills.

4. Labour turnover in sawmills

Table 9 (page 24) presents the separation rates[3] for nine sawmills in 1976. Two sawmills reported no hirings or separations, while three reported separation rates of 100 percent or more. The average separation rate was 60 percent.

Separation rates tend to be higher at sawmills owned by firms having major woodlands or pulp and paper operations nearby. The sawmill is the point of entry into such firms; employers expect that sawmill workers will transfer to the woodlands or pulp and paper operations as openings arise. This form of separation is built into these vertically-integrated firms, and is not considered a major problem. They are concerned, however, about the reasons for job openings in their woodlands and pulp and paper operations.

5. The availability of manpower to sawmills

Table 10 (page 25) indicates the opinions of sawmill operators about the availability of manpower during the period from 1971 to 1981. The majority of respondents believe that their labour markets are in balance[4] and will continue to be so; that is, they believe that neither severe shortages of manpower nor extreme surpluses exist in the market, and they do not foresee any change in these conditions

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[3] See page 14 for a definition of separation rates.

[4] The responses of sawmill operators may be biased: they may be underestimating the number of surplus workers in the labour market. Since most operators are not experiencing labour shortages their concern with surplus workers on the market may be limited. On the other hand, if sawmill operators were experiencing difficulties in hiring workers and, at the same time, if the unemployment rate were high in their areas, their concern might increase. Data from the Statistics Canada Labour Force Survey, shown in the table below, indicate that during most of 1976 the unemployment rate in Northwestern Ontario was higher than the rate in Ontario as a whole.

	Q_1 (%)	Q_2 (%)	Q_3 (%)	Q_4 (%)
Northwestern Ontario	7.3	6.0	6.8	6.2
Ontario	6.9	6.1	5.8	5.9

Table 9

Separation Rates for Sawmills in Northwestern Ontario, 1976

	Number of Employees	Separation Rates in 1976 (%)
Sawmills Belonging to Vertically Integrated Firms		
A	50-100	151
B	50-100	103
C	100-200	100
D	100-200	43
E	100-200	0
Weighted Average*	-----	69
Independent Sawmills		
F	0- 50	25
G	0- 50	11
H	0- 50	8
I	0- 50	0
Weighted Average*	-----	12
Weighted Average* for Nine Sawmills	-----	60

*Weighted by employment.

Table 10

Numbers of Sawmills Reporting or Expecting Shortages or Surpluses

Year	Managers and Administrators		Sawyers		Graders		Labourers		Machinists and Mechanics		Transport Equipment Operators		Electricians		All Others	
	-*	+**	-	+	-	+	-	+	-	+	-	+	-	+	-	+
1971	1	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0
1972	1	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0
1973	1	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0
1974	1	0	0	1	1	0	2	0	2	0	0	1	0	0	0	0
1975	1	1	0	1	1	0	1	2	2	0	0	2	1	0	0	0
1976	0	2	1	2	1	0	2	2	2	0	0	2	1	0	0	0
1977	0	0	2	0	1	0	0	1	3	0	0	0	1	0	0	0
1978	0	0	2	0	1	0	1	1	3	0	0	0	0	0	0	0
1979	0	0	2	0	1	0	1	1	3	0	0	0	0	0	0	0
1980	0	0	2	0	1	0	1	1	3	0	0	0	0	0	0	0
1981	0	0	2	0	1	0	1	1	3	0	0	0	0	0	0	0

*"-" = Shortages

**"+" = Surpluses

N = 9

during the next few years.

The only notable shortages are of machinists and mechanics. Three sawmill operators have experienced or expect to experience such shortages. These shortages are not confined to a single District within Northwestern Ontario but are scattered throughout the Region.

Two reasons were given for the shortages of mechanics and machinists. First, sawmill operators believe that there are not enough training facilities in Northwestern Ontario,[5] particularly outside the Thunder Bay area. Smaller operators claim that the costs and "red tape" associated with sending employees to Thunder Bay for training are too high, especially since there is no guarantee that the workers will return when their training is complete. Similar complaints were expressed by sawmill operators experiencing shortages of sawyers. A second reason given for shortages is the existence of wage disparities between industry sectors. A mechanic may earn more in logging operations, for example, than in sawmills, even when the sawmill and logging operations belong to the same company.

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[5]This concern about insufficient training facilities is in marked contrast to the belief of mine managers that training facilities are adequate. In the larger communities of Northwestern Ontario (i.e., communities whose populations are greater than 5,000) community services seem to be less of a problem than they are in smaller towns, and most sawmills, unlike most mines, are near these larger communities (e.g., Thunder Bay, Kenora, and Dryden).

CHAPTER V

PULP AND PAPER MILLS

1. Current and future employment in pulp and paper mills in Northwestern Ontario

Employment in pulp and paper mills is not expected to change significantly by 1981. Pulp and paper mills currently employ 8,325 workers, and are expected to employ 8,250 workers by 1981, a decrease of slightly less than one percent. Table 11 (page 28) presents the forecasts of employment in Northwestern Ontario by District for each year between 1977 and 1981.

Although employment is not expected to grow in this industry, increases are expected in the production of pulp and paper. Pulp production is expected to increase by 35 percent between 1977 and 1981, paper production by 11 percent. More than 80 percent of the increase in pulp production will occur at Kimberly-Clark in Terrace Bay and Great Lakes Paper in Thunder Bay.

Between 1971 and 1977 several mills in Northwestern Ontario undertook large capital investments to modernise and expand their operations. The effects of these investments are evident in the gains in productivity at these mills. If the output and employment forecasts prove accurate their pulp production will increase by 66 percent between 1971 and 1981, their paper production will increase by 23 percent, and their employment will increase by only 14 percent.

It is questionable, however, whether the pulp and paper mills will be able to maintain their forecast levels of employment throughout each year. The forecast increases in production may not take place if external demand, particularly from the United States,[1] does not increase. Inventories of wood pulp in Canada increased by 28 percent during the first six months of 1977, inventories of newsprint increased by 39 percent, and inventories of paperboard increased by 18 percent.[2] Further increases will result in temporary shutdowns of mills. Thus, unless future increases in demand match the forecast increases in output, many of the 8,000 employees at pulp and paper mills in Northwestern Ontario may be laid off during the next few years.

2. The distribution of employment in pulp and paper mills in Northwestern Ontario by occupation

Table 12 (page 29) shows the distribution of employment by occupation in pulp and paper mills for each District in Northwestern Ontario. As is evident from this table, employers foresee no major shifts in this distribution at their establishments during the next few years.

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[1] Some mills in Northwestern Ontario export more than 90 percent of their output to the United States (e.g., Abitibi's newsprint mills in Thunder Bay).

[2] Canadian Pulp and Paper Association, Statistical Bulletin, June 1977.

Table 11

Forecasts of Employment in Pulp and Paper Mills
in Northwestern Ontario*

District	1977	1978	1979	1980	1981	Percentage of Change 1977-1981
Kenora	1,847	1,830	1,830	1,830	1,830	-0.9
Rainy River	978	955	955	955	955	-2.2
Thunder Bay	5,500	5,493	5,473	5,473	5,473	-0.5
Total	8,325	8,278	8,258	8,258	8,258	-0.8

*Forecasts of employment do not include the effects of Reed Paper's proposed expansion of its pulp mill at Dryden, to be completed in 1979, or its proposed 1,200-ton-a-day kraft mill at Ear Falls. Construction of the Ear Falls project is not expected to begin until 1981 at the earliest.

Forecasts of employment do include the effects of Kimberly-Clark's expansion of its pulp mill at Terrace Bay. This expansion, which was begun in 1975 and will be completed by late 1977, will increase the mill's capacity from 435 to 1,250 tons a day and employment by 100 to 150 workers. These additional workers are included in the 1977 forecasts. Also included in the employment forecasts is the expansion of Great Lakes Paper's kraft mill at Thunder Bay.

N = 10

Table 12

Forecasts of Employment in Pulp and Paper Mills in Northwestern Ontario by Occupation, 1977 and 1981

Occupation	District of Kenora		District of Rainy River		District of Thunder Bay		Northwestern Ontario	
	1977	1981	1977	1981	1977	1981	1977	1981
Management and Administration	83	83	39	39	272	272	394	394
Engineering and Natural Sciences	49	49	12	12	113	112	174	173
Chemical Engineers	13	13	3	3	33	33	49	49
Civil Engineers	1	1	0	0	4	4	5	5
Electrical Engineers	5	5	5	5	12	11	22	21
Mechanical Engineers	12	12	4	4	32	32	48	48
Engineering Technicians	18	18	0	0	20	20	38	38
Others	0	0	0	0	12	12	12	12
Clerical	104	104	42	42	237	237	383	383
Processing Occupations, Pulp and Papermaking	824	819	500	478	2,502	2,454	3,826	3,751
Machinists and Mechanics	400	418	184	184	1,209	1,209	1,793	1,811
Electrical Repairing	73	75	12	12	207	207	292	294
Machinery Mechanics	291	306	172	172	788	788	1,251	1,266
Precision Instrument	20	21	0	0	62	62	82	83
Others	16	16	0	0	152	152	168	168
Transport Equipment Operators	15	15	5	5	125	125	145	145
Materials Handling	68	59	174	174	478	478	720	711
All Others	304	283	22	21	564	586	890	890
Total Employment	1,847	1,830	978	955	5,500	5,473	8,325	8,258

N = 10

3. The employment of women in pulp and paper mills in Northwestern Ontario

In 1976 women comprised 4.8 percent of the total work-force at pulp and paper mills in Northwestern Ontario. Almost 75 percent of these women held clerical jobs. By 1981 their share of total employment is expected to increase to 7 percent. Fifty percent of this increase will result from the plans of one mill to double the number of its female employees; most mills forecast only minimal increases in the employment of women.

According to employers, a major deterrent to increasing the employment of women in the production areas of pulp and paper mills is the entry rules imposed by unions. Newly hired, inexperienced workers must begin work in the lowest job classifications, and these jobs involve mainly manual work. One employer reported that the ratio of male to female job applicants at his mill was 50 to 1. This low level of interest among women was attributed to the nature of the jobs available. If increased participation by women does occur it will be likely to result from the hiring of more women as engineers, laboratory technicians, and middle-level managers.

4. Labour turnover and shortages in pulp and paper mills

In the eight mills that reported sufficient data on turnover the 1976 separation rate, weighted by employment, was 32 percent. Six of the eight mills had rates below 35 percent. The separation rates for 1976 may be higher than normal, however, because pulp and paper workers were on strike during parts of 1975 and 1976, and some workers did not return to their mills after the strike ended.

Table 13 (page 31) shows the number of pulp and paper mills that experienced shortages in selected occupations between 1971 and 1981. The shortages have not been serious in most occupation groups, and employers do not expect serious shortages to occur during the next few years. The one exception is among machinists and mechanics. A majority of establishments are experiencing a shortage of workers in these occupations that is not expected to diminish until 1980.

Employers believe the main causes of this shortage to be the high cost of housing, particularly in northern towns, and insufficient training facilities in Northwestern Ontario. Employers said that they usually had no difficulty in hiring inexperienced machinists and mechanics, but that machinists and mechanics with previous experience in the pulp and paper industry were relatively scarce.

For the most part, employers did not consider either labour shortages or labour turnover to be serious problems. They noted that pulp and paper mills are located in established towns; all mills have been in operation for at least thirty years. Seven of the ten mills are in towns or cities whose populations exceed 5,000; four mills are located in Thunder Bay, whose population is more than 100,000. The relatively large populations of these towns and the length of time that the mills have been there have permitted the development of community services and housing which, although expensive, are superior to those found in most other communities in Northwestern Ontario.

Respondents also emphasised that the wage rates at pulp and paper mills compare favourably with those in other industries in Northwestern Ontario, making high turnover and large labour shortages less likely. An examination of recent collective agreements lends support to this statement. For example, the wage rates in

Table 13

Numbers of Pulp and Paper Mills Reporting or Expecting Shortages

Occupation	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Managerial and Administrative	0	0	0	0	0	0	1	1	1	0	0
Chemical Engineers	1	1	1	2	2	1	3	3	2	2	2
Electrical Engineers	1	1	1	1	1	1	2	2	2	2	2
Mechanical Engineers	1	1	1	2	1	1	2	2	2	2	2
Machinists and Mechanics	2	2	3	3	5	6	6	5	4	2	2

N = 10

the Chemical Division of Reed Paper in Dryden range from $6.23 to $8.65 an hour in the current year,[3] while the rates at the UMEX site at Pickle Lake range from $5.30 to $8.15 an hour.[4]

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[3]See Collective Agreement between Reed Ltd. Pulp and Paper Group, Chemical Division, Chlor-Alkali and Silvi Chemicals, Dryden, Ontario, and Canadian Paperworkers Union Local 105, effective January 1, 1976 to September 1, 1978.

[4]See Collective Agreement between Union Miniere Explorations and Mining Corporation Ltd. and the United Steelworkers of America, Local 8533, effective January 8, 1977 to January 8, 1979.

CHAPTER VI

LOGGING

1. Current and future employment in logging in Northwestern Ontario

This survey could not cover all the logging establishments in Northwestern Ontario because a complete listing of these establishments is not available. The data on employment and output given here include only those for logging operations run by the ten pulp and paper mills and the major sawmills in Northwestern Ontario (see Table 14). Employment in the fifteen logging establishments participating in the survey is expected to increase by 8.2 percent between 1977 and 1981; production, measured in cords of wood, is forecast to increase by 23 percent during the same period.

Table 14

Employment and Output in the Surveyed Logging Establishments

Year	Output (Cords)	Employment	Output per Employee
1977	3,054,000	4,894	624
1978	3,449,000	5,105	676
1979	3,707,000	5,211	711
1980	3,729,000	5,258	709
1981	3,756,000	5,296	709

N = 15

2. The distribution of employment in logging in Northwestern Ontario by occupation

Table 15 (page 34) shows distributions of the employment in logging by occupation between 1977 and 1981, based on the responses of the surveyed logging establishments. Timber cutters, machinists and mechanics, and transport equipment operators are the major occupational categories in logging. In view of the fact that the output per employee is expected to increase by almost 14 percent it is surprising to find that the distribution is expected to remain fairly stable during the forecast period. One might have expected that increased mechanisation in logging, which several employers predicted, would have led the proportion of machinists and mechanics to rise and possibly the proportion of timber cutters to fall. The data indicate that there will be very moderate increases in the proportions of both

Table 15

Distribution of Employment in Logging by Occupation

Occupation	1977	1981
Managerial and Administrative	2.6	2.6
Engineering	0.7	0.7
Clerical	3.9	3.9
Logging Occupations	58.4	58.4
Foreman	6.3	6.1
Forestry Conservation	0.2	0.4
Timber Cutting	39.2	39.8
Log Inspecting and Grading	2.0	1.9
Log Hoisting, Sorting, and Moving	8.1	8.1
Labourers	1.3	1.0
Others	1.3	1.1
Machinists and Mechanics	14.0	14.2
Transport Equipment Operators	14.2	14.8
All Others	6.2	5.6
Total	100.0	100.0

mechanics and timber cutters between 1977 and 1981. As might be expected under conditions of increasing mechanisation, the proportion of labourers is forecast to decline slightly from 1.3 percent in 1977 to 1.0 percent in 1981.

3. Labour turnover in logging

The average separation rate, weighted by employment, for the ten logging operations in Northwestern Ontario that supplied adequate data was 40.7 percent in 1976. Separation rates ranged from zero to 113 percent; six of the ten operations had separation rates of less than 30 percent.[1]

4. The employment of women in logging

In 1976, 3.9 percent of the employees in the establishments canvassed were women. By 1981 their share of employment is expected to increase to 4.2 percent. Almost all female employees work either on the clerical staff in the towns where mills are located or as cooks at logging camps. Employers noted that the tendency to establish commuter camps is increasing, so that the proportion of women employed as cooks may decline during the next few years. Counteracting this trend is an increasing tendency of the larger operations to hire women in managerial and administrative positions and as foresters.

5. Labour shortages in logging

Table 16 (page 36) shows the opinions of employers about the availability of manpower in logging between 1971 and 1981. Machinists, mechanics, and timber cutters were most frequently cited as being in short supply. Before 1977 as many as 40 percent of the operations had difficulty in obtaining sufficient numbers of qualified mechanics and timber cutters, and between 1977 and 1981 about 50 percent of the logging operations expect to experience shortages in these occupations.

Employers pointed out that mechanics and timber cutters are drawn from different labour markets. While logging operations tend to attract mechanics from Winnipeg, Toronto, and other large urban centres in Southern Ontario, timber cutters normally come from within Northwestern Ontario. The employers believe that there are unemployed mechanics in the larger cities of Southern Ontario and Manitoba who are unwilling to move to Northwestern Ontario. At the same time, they suspect that there are unemployed timber cutters living in Northwestern Ontario who are no longer willing to work in logging operations.

The most serious causes of shortages of machinists and mechanics are thought to be the remoteness of the locations of logging operations and the lack of sufficient training facilities in Northwestern Ontario. Four of the nine employers who experienced shortages considered inadequate training facilities to be the most serious cause of shortages of mechanics, and four believed the location or isolation of logging camps to be the most serious cause. Attempts are being made to overcome the isolation by creating more commuter camps, which allow workers to return to their homes each day. However, as timber cutting moves farther north into more

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[1] Many logging firms reduce their operations in the spring, when weather conditions make it difficult to transport logs from the forests to the mills. Temporary layoffs therefore occur in the spring, but, according to employers, most workers return as weather conditions improve. The separation rates exclude workers who were rehired after a layoff, but include those who decided not to return after being laid off.

Table 16

Number of Logging Establishments Reporting Shortages or Surpluses

Year	Managerial and Administrative		Forest Engineers		Timber Cutters		Log Inspecting Grading, and Scaling		Log Hoisting, Sorting, and Moving		Labourers		Machinists and Mechanics		Transport Equipment Operators	
	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+
1971	1	0	1	0	2	2	1	1	1	0	1	0	4	1	1	1
1972	0	1	0	1	3	2	0	2	0	1	0	1	4	2	0	2
1973	0	1	0	1	3	2	1	2	0	1	0	1	5	2	1	2
1974	1	1	0	1	6	2	1	2	0	1	0	1	6	2	1	2
1975	0	1	0	1	2	3	0	2	0	1	0	1	5	2	0	2
1976	0	1	0	2	1	3	1	2	0	1	0	1	5	2	0	2
1977	0	0	1	3	4	1	1	1	0	0	0	2	6	0	0	1
1978	0	0	0	2	8	1	1	1	0	0	0	2	7	0	1	1
1979	0	0	0	2	7	0	2	1	0	0	0	2	8	0	1	1
1980	0	0	0	2	7	1	2	1	0	0	0	2	7	0	1	2
1981	0	0	0	2	7	0	2	1	0	0	0	2	7	0	1	1

"-" = Shortage

N = 15

"+" = Surplus

sparsely settled areas, the feasibility of commuter camps diminishes.

Three factors were cited as causes of the shortages of timber cutters: the nature of the work, the type of training facilities available in Northwestern Ontario, and the isolation of logging operations. Although the level of wages was not considered a serious problem in attracting timber cutters to logging operations in the Region, two respondents did point out the great variability in the earnings among timber cutters. Many timber cutters are paid on a piecework basis, and earnings can vary from $800 a month to $3,000 a month according to the skills and motivation of the worker. Workers' attitudes often limit their earnings severely, and their relatively low earnings cause them to quit logging.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The major findings of this survey may be summarised as follows:

1) Employment in mining in Northwestern Ontario is expected to decline 13 percent between 1977 and 1981. This decline could be almost twice as large if Steep Rock Iron Mines does not begin operation at Bending Lake in 1980 or 1981.

2) Employment in pulp and paper mills and sawmills in Northwestern Ontario is expected to be stable between 1977 and 1981. Employment in logging may increase by eight or nine percent if the output expectations of the pulp and paper mills and sawmills are realised. In view of current uncertainty about world market conditions in the forest products industry, however, the forecasts of output from the mills should be assessed with caution.

3) Labour turnover is not excessively high in the mining and forest products industries in Northwestern Ontario. The separation rates in these industries in 1976 ranged from 32 percent in the pulp and paper industry to 61 percent in mining. These rates do not differ significantly from those in other industries in Ontario. The separation rate in mining appears to vary according to the age of the individual mine, new mines experiencing the highest rates.

4) Employers named a variety of causes that, in their view, explain labour turnover and shortages in the Region. Employers in all industries said that the price, quantity, and quality of housing and community services in their towns was a problem. Employers in the mining industry emphasised the shortage of community services and suitable housing; those in the forest products industries were more concerned about the availability of training facilities in Northwestern Ontario, particularly those for machinists and mechanics.

5) There are no shortages of labour in most occupations in the resource-based industries in Northwestern Ontario, nor are serious shortages foreseen during the next few years. However, one occupation group, machinists and mechanics, is in short supply throughout the mining and forest products industries, although the magnitude of the shortage is not great.

The results of this survey suggest that the labour market in the resource-based industries in Northwestern Ontario may be operating more efficiently than is generally thought. Labour shortages and turnover do not appear to place serious constraints on the development of the resource industries. However, further study of the demand for and supply of machinists and mechanics in the forest products industries may be required to determine what training programmes for these occupations may be appropriate to the needs of employers in Northwestern Ontario.

APPENDICES

APPENDIX A

NORTHWESTERN ONTARIO MANPOWER ADJUSTMENT STUDY

QUESTIONNAIRE I

MANPOWER REQUIREMENTS

in

NORTHWESTERN ONTARIO

INTRODUCTION

There are seven sections in this Questionnaire. Section I asks you to identify yourself and your establishment. Sections II, III, IV, V, and VI request information about output, employment, occupational distribution, manpower shortages and surpluses, and female employment respectively. Section VII asks you to describe briefly how you made your forecasts and, also, whether there is any information we might provide that would assist you in responding to the subsequent questionnaires.

Throughout this Questionnaire information is requested about both your establishment and your industry. To ensure that each participant is clear about which establishments belong to his industry class we have compiled a list of such establishments. The list is in Appendix A of the Questionnaire. If you feel any major establishments (e.g. more than 20 employees) have been left off the list PLEASE ADVISE US IMMEDIATELY BY CALLING THE NUMBER BELOW.

In order that every participant has the same picture of the geographical boundaries of Northwestern Ontario we have included a map in Appendix B.

To avoid confusion in assigning workers to occupations we have supplied occupational definitions in Appendix C. Please refer to this Appendix before completing Sections IV and V.

Without complete and thoughtful responses to this Questionnaire by every participant, realistic forecasts of manpower requirements in Northwestern Ontario will be impossible. To a large extent the benefits derived from the remaining questionnaires depend on the manner in which this Questionnaire is completed. Forecasting, especially for an entire industry, is a difficult task. Initially you will feel plagued by the uncertainties of the future but, hopefully, some of these uncertainties will diminish when completing the remaining questionnaires.

NOTE: (1) Any question concerning the Questionnaire should be referred to:

Brian Wolfe
Research Branch
Ministry of Labour
Tel. - (416) 965-6886 (call collect)

(2) The answers to this Questionnaire will be confidential. No information will be published from which individual establishment operations can be identified.

I. GENERAL DATA

1. Name of Company:

2. Name of Establishment or Division of Company:

3. S.I.C. Code Number:
   Product(s) of Establishment:

4. Address of Establishment:

5. Name of Respondent:

6. Position of Respondent:

7. Business Telephone Number of Respondent:

8. Year Establishment Began Operations:

Respondent Number _____

II OUTPUT INFORMATION

1. What has been your establishment's output for each of the last six years and what is your forecast of output for each of the next five years? Please use tons of ore and non-ore (waste rock) mined annually as the unit of output.

HISTORICAL OUTPUT

(tons of ore and non-ore)

1971	1972	1973	1974	1975	1976

FORECAST OF OUTPUT

(tons of ore and non-ore)

1977	1978	1979	1980	1981

Answer question 2 or 3, but priority should be given to Question 2.

2. For all establishments within your industry class in Northwestern Ontario what do you think their combined output was in 1971 and 1976?

   What do you forecast their output to be for each of the next five years? In answering please include the effects on output of expected new operations and closures.

   Include your establishment's output in all estimates.

   Please use tons of ore and non-ore (waste rock) as the unit of output.

OUTPUT

(tons of ore and non-ore)

1971	1976	1977	1978	1979	1980	1981

3. For all establishments combined within your industry class in Northwestern Ontario what do you think their percentage change in output has been between 1971 and 1976?

   What do you forecast their annual percentage change in output to be for each year from 1976-1981? In answering please include the effects on output of expected new operations and closures.

Include your establishment's rate of change of output in all estimates.

Treat ore and non-ore as one product.

OUTPUT CHANGES

	% Increase	% Decrease
1971-1976		
1976-1977		
1977-1978		
1978-1979		
1979-1980		
1980-1981		

4. In answering question 2 or 3 did your forecasts include the output of any expected new operations or closures?

Yes _____ No _____

If yes please complete the tables below, indicating the expected annual output of new operations and closures. Note that zero (0) output may be an appropriate response for some years in the case of both new operations and closures. Treat ore and non-ore as one product.

OUTPUT of
NEW OPERATIONS

(tons of ore and non-ore)

Name of New Operation	Forecast of Output of New Operations				
	1977	1978	1979	1980	1981
1.					
2.					
3.					
4.					
5.					

OUTPUT of

CLOSURES

(tons of ore and non-ore)

Name of Closure	Forecast of Output of Closures				
	1977	1978	1979	1980	1981
1.					
2.					
3.					
4.					
5.					

5. What percentage of the total output of establishments within your industry class in Northwestern Ontario did your establishment have in 1976?

_____ % of output in 1976

III. EMPLOYMENT INFORMATION

1. For <u>your establishment</u> indicate the total number of employees (part-time plus full-time) on your payroll in each of the last six years. Both production and non-production employees should be included. Please use year-end (December 31st) figures.

1971	1972	1973	1974	1975	1976

2. On December 31st, 1976 what percentage of your employees were part-time (i.e., employees working on average less than 36 hours per week)?

_____ % part-time employees

3. For <u>your establishment</u> please indicate the peak and low employment months in 1976.

1976	
Peak month was _____	Low month was _____
Total employment was _____	Total employment was _____

4. Does the variability or lack of variability of employment indicated in question 3 normally occur, or were there special circumstances in 1976? Please comment.

_____

_____

_____

_____

_____

_____

5. Between December 31, 1975 and December 31, 1976 how many hirings did your establishment make? In answering include both hirings for replacement purposes and hirings due to expansion of total employment.

Total hirings Dec. 31/75 to Dec. 31/76 =

% of total hirings that involved part-time employment (i.e., employees working on average less than 36 hours per week)
= %

6. For your establishment what do you forecast total employment to be for each of the next five years? Please forecast year-end (December 31st) figures.

1977	1978	1979	1980	1981

Answer question 7 or 8, but priority should be given to question 7.

7. For all establishments within your industry class in Northwestern Ontario what do you think their combined total employment was in 1971 and 1976?

What do you forecast their combined total employment to be for each of the next five years? In answering please include the effects on employment of expected new operations and closures.

Include your establishment's total employment in all estimates.

Please make year-end (December 31st) estimates.

TOTAL EMPLOYMENT

1971	1976	1977	1978	1979	1980	1981

8. For all establishments combined within your industry class in Northwestern Ontario what do you think their percentage change in total employment has been between 1971 and 1976?

What do you forecast their percentage change in total employment to be for each year from 1976 to 1981? In answering please include the effects on employment of expected new operations and closures.

Include your establishment's rate of change of employment in all estimates.

Please make year-end (December 31st) estimates.

	% Increase	% Decrease
Dec. 31/71 - Dec. 31/76		
Dec. 31/76 - Dec. 31/77		
Dec. 31/77 - Dec. 31/78		
Dec. 31/78 - Dec. 31/79		
Dec. 31/79 - Dec. 31/80		
Dec. 31/80 - Dec. 31/81		

9. In answering question 7 or 8 did your forecasts include the effects on employment of any expected new operations or closures?

Yes _____ No _____

If yes please complete the tables below, indicating the expected annual employment of new operations and closures. Note that zero (0) employment may be an appropriate response for some years in the case of both new operations and closures.

EMPLOYMENT IN NEW OPERATIONS

Name of New Operation	Forecast of Employment in New Operations				
	1977	1978	1979	1980	1981
1.					
2.					
3.					
4.					
5.					

EMPLOYMENT IN CLOSURES

Name of Closure	Forecast of Employment in Closures				
	1977	1978	1979	1980	1981
1.					
2.					
3.					
4.					
5.					

10. What percentage of total employment of establishments within your industry class in Northwestern Ontario did your establishment have in 1976?

_____ % of employment in 1976

IV. OCCUPATIONAL INFORMATION

1. The table below seeks information about employment by occupation at your establishment for the years 1976, 1977, and 1981. The table is subdivided into fairly broad occupational categories, namely, managers and administrators, engineers and scientists, clerical occupations, miners, processing occupations, machinists and mechanics, construction trades, transport equipment operators, and all others. But, some of these categories are further broken down; for example, within the engineer-scientist category mining engineers, geologists etc. are listed. At the minimum please estimate the number of employees in the broader occupational categories; however, please also attempt to provide estimates at the more disaggregated level. The numbers assigned to the broader occupational categories should sum to your establishment's total employment; the numbers assigned to more detailed categories within a broad category should sum to the number assigned to that broad category.

In Appendix C there are descriptions of some occupational categories. Please refer to these descriptions when filling out the table.

DISTRIBUTION OF EMPLOYEES

BY OCCUPATION AT YOUR ESTABLISHMENT

Occupation	Number of Employees		
	1976	1977	1981
11 - Managerial and Administrative			
21 - Occupations in Natural Sciences, Engineering and Mathematics			
2111 - Chemists			
2112 - Geologists			
2113 - Physicists			
2145 - Industrial (Efficiency) Engineers			
2151 - Metallurgical Engineers			
2153 - Mining Engineers			
2161 - Surveyors			
2163 - Draughtsmen			
2165 - Engineering Technicians			
Others			
41 - Clerical Occupations			
77 - Miners			
7710 - Foremen			
7713 - Rock and Soil-Drilling			
7715 - Blasting			
7717 - Cutting, Handling, and Loading			
7718 - Labourers			
7719 - Others			
81 - Processing Occupations			
83/85 - Machinists and Mechanics			
87 - Construction Trades Occupations			
8733 - Electricians			
8781 - Carpenters			
8791 - Pipefitting, Plumbing			
Others			
91 - Transport Equipment Operating Occupations			
All Others (Please give descriptive titles below)			

2. The table below seeks information about employment by occupation for all establishments within your industry class. In this table only the broad occupational categories are listed. Please estimate the percentage distribution of employees by occupation for your industry class as a whole in Northwestern Ontario. Refer to the previous table and Appendix C for assistance in assigning types of work to occupational categories.

PERCENTAGE DISTRIBUTION OF EMPLOYEES
BY OCCUPATION IN YOUR INDUSTRY CLASS

Occupation	Percentage of Employees		
	1976	1977	1981
11 - Managerial and Administrative			
21 - Occupations in Natural Sciences, Engineering and Mathematics			
41 - Clerical Occupations			
77 - Miners			
81 - Processing Occupations			
83/85 - Machinists and Mechanics			
87 - Construction Trades			
91 - Transport Equipment Operating Occupations			
All Others			
	100%	100%	100%

V. MANPOWER SHORTAGES AND SURPLUSES

1. In which of the following years whould your establishment have hired more employees if available at the going wage and salary levels? And in which of these years were there excess workers on the market? Please enter in the appropriate spaces S for shortage, and E for excess. If neither a shortage nor a surplus leave the space blank.

Occupations	1971	1972	1973	1974	1975	1976
11 - Managerial and Administrative						
2112 - Geologists						
2151 - Metallurgical						
2153 - Mining Engineers						
Other Engineering and Science						
77 - Miners						
All Others						

2. In which of the following occupations do you foresee shortages at your establishment during the period 1977 to 1981? And in which of these occupations do you expect an excess of workers on the market? Please enter in the appropriate spaces S for shortage and E for excess. If neither a shortage nor a surplus leave the space blank.

Occupation	1977	1978	1979	1980	1981
11 - Managerial and Administrative					
2112 - Geologists					
2151 - Metallurgical					
2153 - Mining Engineers					
Other Engineering and Science					
77 - Miners					
All Others					

3. Certain shortages may affect the operation of your establishment more than others. In the following table please rank the shortages you indicated in Question 2 according to the severity of their impact on your establishment. In doing this take into account the expected size and duration of a shortage, and whether or not a shortage involves a type of worker that is crucial to your production process.

Assign the Number 1 to the most serious shortage, the Number 2 to the second most serious shortage, and so on. If no shortage is expected assign the Number 0.

Occupations in Short Supply, 1977 to 1981	Rank Order
11 - Managerial and Administrative	
2112 - Geologists	
2151 - Metallurgical	
2153 - Mining Engineers	
Other Engineering and Science	
All Others	

4. For those shortages indicated in Questions 1 and 2 that may pose a long-run problem (i.e., shortages that may last several years) to your establishment please indicate below what may cause them.

For each occupational shortage assign the Number 1 to the most serious cause, the Number 2 to the second most serious cause, and so on. If an item listed has no or little effect on the supply of workers to an occupation assign the Number 0. If an occupation shortage does not exist or pose a long-run problem leave the spaces blank.

	Causes of Shortages				
Occupation	Low Real Wages*	Poor Housing	Isolated Location	Insufficient Training Facilities in N.W.O.	Other
11 - Managerial and Administrative					
21 - Engineering and Science					
77 - Miners					
All Others					

* Takes into account cost-of-living

5. Have you any further comments on manpower shortages and surpluses? For example, are there any specific types of workers not listed in the above tables for which you expect to have difficulties in hiring sufficient numbers? Or are there any specific occupations not listed in which you expect to find an excess of workers on the market? And are there any causes of shortages not shown above which you consider particularly important? Please comment below.

_____

_____

_____

_____

_____

_____

_____

_____

_____

VI. EMPLOYMENT OF WOMEN

1. At your establishment in 1976 and 1977 what percentage of all employees were female?

_____ % female in 1976

_____ % female in 1977

2. In 1981 what percentage of employees at your establishment do you expect to be female?

_____ % female in 1981

3. What percentage of the female employees were full-time employees at your establishment in 1976 and 1977?

_____ % of the female employees worked full-time in 1976

_____ % of the female employees are working full-time in 1977

4. What percentage of the female employees were in clerical occupations at your establishment in 1976 and 1977?

_____ % of the female employees in clerical occupations in 1976

_____ % of the female employees in clerical occupations in 1977

5. Are there any occupations in which you expect women in the next five years to become increasingly employed at your establishment? That is, are there any occupations for which you expect the proportion of female employees to rise significantly?

   If yes, please list those occupations below.

   If no, why not?

   _____

   _____

   _____

   _____

   _____

VII. ESTIMATION TECHNIQUE, GENERAL COMMENTS AND INFORMATION REQUESTS

1. We are interested in having an understanding of how you made your forecasts. What were the major factors you took into account in forecasting output, employment, and occupational mix? Did you consider different factors when forecasting the industry's performance as opposed to your establishment's performance? Please comment below or use a separate sheet if necessary.

   _____

   _____

   _____

   _____

   _____

   _____

2. We would appreciate also any further comments you have on the present and future manpower situation in Northwestern Ontario, particularly in terms of your industry. The Northwestern Ontario Manpower Adjustment study was launched in an attempt to discover what, in qualitative and quantitative terms, the manpower problems are in Northwestern Ontario. The study will permit informed approaches to be made to governments, educational institutions, students, and employers in the efforts to overcome these problems. Comments either on the nature of the present or developing problems or on the ways to overcome these problems are welcome. Please comment below or use a separate sheet if necessary.

3. For the subsequent questionnaires is there any information (e.g., historical data) not currently available to you that would assist you in refining the industry forecasts. Please indicate information requests below, and we will attempt to provide you with this information.

Information Requests
1.
2.
3.
4.

In assigning workers to occupational categories the major concern should be the kind of work performed. The categories describe work functions and not educational backgrounds. Thus a graduate mining engineer primarily engaged in mining geology would be classified as a geologist, not as a mining engineer.

11 - Managerial and Administrative Occupations

Management occupations are concerned with planning, directing, and controlling on owners' or own behalf an establishment. Include mine and mill superintendents in this category.

Also, under Management and Administration include:

(1) accountants, auditors, and other financial officers
(2) personnel officers
(3) purchasing officers

21 - Occupations in Natural Sciences, Engineering, and Mathematics (2111 to 2165)

This major group includes occupations concerned with research pertaining to the physical universe and living organisms and the practical application of established scientific and engineering laws and principals to specific problems and situations.

Most of the categories within this major group are self-explanatory. A possible exception is the category engineering technician. An engineering technician performs one or more technical tasks under the supervision of a professional engineer; the tasks will not normally be creative and the work will be more narrowly defined than that of a professional engineer.

41 - Clerical Occupations

This major group includes:

(1) stenographic and typing occupations
(2) book-keeping and account-recording occupations
(3) office machine operators
(4) material recording, scheduling and distributing occupations
(5) reception, mail, and information occupations
(6) personnel clerks, general office clerks
(7) supervisors of clerical positions

77 - Miners

Under the foreman classification (7710) include:

(1) foreman, blasting occupations
(2) foreman, cutting and loading occupations
(3) foreman, labourers
(4) foreman, other rock and soil drilling occupations

Under the rock and soil-drilling classification (7713) include:

(1) churn-drill operator
(2) core-drill operator
(3) core-drill operator helper
(4) driller, jet-piercing
(5) driller, long hole
(6) driller helper
(7) drilling machine operator
(8) drilling-machine operator helper
(9) jackhammer operator
(10) raise-boring-machine operator

Under blasting occupations (7715) include:

(1) blaster
(2) blaster helper
(3) pit scaler
(4) pit-scaler helper

Under cutting, handling, and loading occupations (7717) include:

(1) aerial-tram operator
(2) augerman
(3) beltwagon operator
(4) boom-conveyor operator
(5) bucketwheel-excavator operator
(6) cageman
(7) chute loader
(8) cobber
(9) continuous-mining-machine operator
(10) cutting-machine operator
(11) loading-machine operator
(12) mechanical-shovel operator
(13) slusher operator

Under occupations in labouring and other elemental work (7718) include:

(1) car cleaner
(2) grizzly worker
(3) labourer, general
(4) rock duster
(5) slate picker
(6) slusher-operator helper
(7) timber and steel-prop setter helper

Under 'other' include:

(1) back-fill man
(2) brattice man
(3) core splitter
(4) fire boss
(5) lampman
(6) mover, all-round
(7) miner, helper
(8) nipper
(9) roof bolter
(10) safety inspector of mine
(11) shaftman
(12) steel erector
(13) timber and steel-prop salvager
(14) timber and steel-prop setter

81 - Processing Occupations

This major group includes occupations concerned with refining and treating materials such as ores and metals. Some occupations in this group are:

(1) crusher setter
(2) filtering attendant
(3) heavy-media tender
(4) screenman
(5) spiral attendant
(6) ore-sample tester
(7) mineral sampler
(8) ore-drier operator

83/85 - Machinists and Mechanics

In this group we are mainly concerned about occupations involving repairing, adjusting, and servicing of mechanical equipment. An example of an occupation belonging to this group is a mining-shovel oiler.

87 - Construction Trades Occupations (8733 to 8791)

These categories should be self-explanatory. Among 'others' include: (1) dragline operator, (2) heavy-equipment operator.

91 - Transport Equipment Operating Occupations

This major group includes occupations concerned with operating transport equipment such as aircraft, trucks, trains, and buses. In this group include:

(1) dinkey-engine operator

(2) car dropper

(3) dinkey-engine brakeman

(4) shuttle-car operator

All Others

If the above categories do not include the type of work performed by an employee or if you have difficulties in determining the occupational category an employee belongs to please include the employee under the category "All Others". Give a descriptive title indicating the type of work performed by the employee.

APPENDIX B

ESTABLISHMENTS PARTICIPATING IN THE SURVEY

1. Mines

Caland Ore Company Limited
Atikokan

Steep Rock Iron Mines
Atikokan

Griffith Mine
Red Lake

Campbell Red Lake Mines Limited
Balmertown

Noranda Mines (Geco Mine)
Manitouwadge

Shebandowan Mine (Inco Ltd.)
Shebandowan

Mattabi Mines Limited
Ignace

Robin Red Lake Mines Limited (Division of Dickenson)
Balmertown

Selco Mining Corporation Limited
Ear Falls

Mattagami Lake Mines Limited
Ignace

Union Miniere Explorations and Mining Corporation Limited
Pickle Lake

Falconbridge Copper Limited
Ignace

2. Pulp and paper mills

Reed Paper Company Limited
Dryden

Ontario-Minnesota Pulp and Paper Company Limited
Fort Frances Mill

Ontario-Minnesota Pulp and Paper Company Limited
Kenora Mill

Domtar Newsprint Limited
Red Rock

American Can of Canada Limited
Marathon

Kimberly-Clark of Canada Limited
Terrace Bay

Abitibi Paper Company Limited
Thunder Bay "P"

Abitibi Paper Company Limited
Thunder Bay "F"

Abitibi Provincial Paper Limited
Thunder Bay "P"

Great Lakes Paper Company Limited
Thunder Bay

3. Sawmills

Domtar Woodlands Limited
Atikokan (Mill at Sapawe)

Reed Paper Company Limited
Dryden

Kimberly-Clark of Canada Limited
Longlac

Ontario-Minnesota Pulp and Paper Company Limited
Keewatin Mill

Great West Timber Limited
Thunder Bay

Peterson Lumber Company Limited
Kenora

Trilake Timber Company Limited
Kenora

Manitou Enterprises
Emo

Kakabeka Timber Limited
Kakabeka Falls

Great Lakes Paper Company Limited
Thunder Bay

MacMillan-Bloedel

Multiply Plywood Limited
Nipigon

4. Logging

Great Lakes Paper Company Limited
Thunder Bay

Domtar Woodlands Limited
Atikokan

Ontario-Minnesota Pulp and Paper Company Limited
Kenora

Domtar Newsprint Limited
Nipigon

Ontario-Minnesota Pulp and Paper Company Limited
Fort Frances

Reed Paper Company Limited
Dryden

Kimberly-Clark of Canada
Longlac

American Can of Canada Limited
Marathon

Multiply Plywood Limited
Nipigon

Devlin Timber Company Limited
Kenora

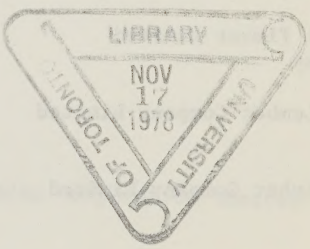
Abitibi Paper Company Limited
Thunder Bay

Buchanan Brothers Limited
Thunder Bay

Pluswood Manufacturing Limited
Atikokan

Trilake Timber Company Limited
Kenora

Ontario Paper Company Limited
Manitouwadge



Northwestern Ontario Manpower Adjustment Study

Component Studies

1. **An Economic History of Northwestern Ontario**
2. **Projections of Labour Supply by Occupation in Northwestern Ontario, to 1981**
3. **Projections of Enrolment and Graduations from Secondary and Post-Secondary Institutions in Northwestern Ontario, to 1981**
4. **Labour Market Intentions of Graduating Students from Post-Secondary Institutions in Northwestern Ontario**
5. **Projections of Total Labour Force in Northwestern Ontario, to 1981**
6. **Results of a Manpower Survey of the Mineral and Forest Products Industries in Northwestern Ontario**
7. **Projections of Manpower Requirements by Occupation and Industry for Northwestern Ontario, to 1981**
8. **Aspects of Migration in Northwestern Ontario, 1966-71**
9. **Why People Move from Northwestern Ontario**
10. **Labour Turnover and Absenteeism in Selected Industries: Northwestern Ontario and Ontario**

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